THE UNIVERSITY OF WESTERN ONTARIO
BIOLOGICAL AGENTS REGISTRY FORM
Approved Biohazards Subcommittee: July 9, 2010
Biosafety Website: www.uwo.ca/humanresources/biosafety/

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario (UWO) or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biological agents is described in the laboratory or animal work proposed. The form must also be completed if any work is proposed involving animals carrying zoonotic agents infectious to humans or involving plants, fungi, or insects that require Public Health Agency of Canada (PHAC) or Canadian Food Inspection Agency (CFIA) permits.

This form must be updated at least every 3 years or when there are changes to the biological agents being used.

Containment Levels will be established in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Public Health Agency of Canada (PHAC) or Containment Standards for Veterinary Facilities, 1st edition 1996, Canadian Food Inspection Agency (CFIA).

Completed forms are to be returned to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190) for distribution to the Biohazards Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or biosafety@uwo.ca. If there are changes to the information on this form (excluding grant title and funding agencies), contact Occupational Health and Safety for a modification form. See website: www.uwo.ca/humanresources/biosafety

PRINCIPAL INVESTIGATOR	Dr. Gregor Reid
DEPARTMENT	Microbiology and Immunology
ADDRESS	Lawson Health Research Institute St. Joseph's Hospital 268 Grosvenor St. London, ON N6A 4V2
PHONE NUMBER	(519) 646-6000 x65256
EMERGENCY PHONE NUMBER(S)	N/A
EMAIL	gregor@uwo.ca

Location of experimental work to be carried out: Building(s)Lawson Health Research Institute Room(s) F3-127

*For work being performed at Institutions affiliated with the University of Western Ontario, the Safety Officer for the Institution where experiments will take place must sign the form prior to its being sent to the University of Western Ontario Biosafety Officer (See Section 15.0, Approvals).

FUNDING AGENCY/AGENCIES: Kimberly Clark, Dairy Farmers of Canada, NSERC, Danone
GRANT TITLE(S):
Reid, G., and J. McCormick. 2009-10. Kimberly Clark, $280,000, studies on biomaterials.
Reid, G. 2009-11. Dairy Farmers of Canada and NSERC, Genomics of lactobacilli for dairy applications, $85,000.
Reid, G. 2010-11. NSERC Discovery, $27,000, Deciphering Lactobacillus functionality.
Reid, G. 2010-11 Danone, $120,000, Detoxication study.

List all personnel working under Principal Investigators supervision in this location:

Name	UWO E-mail Address	Date of Biosafety Training
Marc Monachese	mmonach@uwo.ca	Dec 8 2009
Roderick MacPhee	rmacphee@uwo.ca	Dec 8 2009
Jordan Bisanz	jbisanz@uwo.ca	Oct 15 2009
Wayne Miller	wmiller5@uwo.ca	Jan 19, 2010
Amy McMillan	amcmil2@uwo.ca	Sep. 15, 2010
Shannon Mifflin	N/A (shannon.mifflin@sjhc.london.on.ca)	Aug. 6, 2010

Please explain the biological agents and/or biohazardous substances used and how they will be stored, used and disposed of. Projects without this description will not be reviewed.

In regards to biological agents, our lab primarily works with nonpathogenic strains of bacteria from the genera Lactobacilli and Bifidobacterium. We also work with the urogenital pathogenic bacteria *Atopobium vaginae* and *Gardnerella vaginalis*. Additionally, we work with the VK2 (vaginal epithelial cells) and CaCo-2 (intestinal epithelial cells) cell lines. Stocks of the bacteria are stored in 1.5 ml cryotubes in boxes in a -80° C freezer. Stocks of the cell lines are stored in cryotubes in boxes in a deep freezer containing liquid nitrogen. When working with these bacteria and cells, proper safety precautions will be used, including the use of gloves, lap coats, and aseptic technique. Agar plates and other solid waste that has come in contact with biological agents will be disposed of in the appropriate biological waste bins. Liquid waste will be bleached, and then disposed of based on the type of solution present (growth media will be dumped down the drain, liquids containing hazardous chemicals will be labeled and sent for chemical waste pickup, where they will be disposed of safely).

Please include a one page research summary or teaching protocol.

Our research is aimed at using beneficial microbes to improve health. Primarily, we focus on the microbiota of the vagina and how it changes between health and bacterial vaginosis. This involves genomic studies of the organisms using bioinformatics and pyrosequencing. The mechanistic studies involve human epithelial cells, cell lines, blood cells, and microscopy. Most of the organisms we use are food-grade non-pathogens, and of the pathogens, non are highly infectious.

1.0 Microorganisms

1.1 Does your work involve the use of biological agents? ⊗ YES O NO
(non-pathogenic and pathogenic biological agents including but not limited to bacteria and other microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)? If no, please proceed to Section 2.0

Do you use microorganisms that require a permit from the CFIA? O YES ⊗ NO
If YES, please give the name of the species. _____
What is the origin of the microorganism(s)? _____
Please describe the risk (if any) of escape and how this will be mitigated:

_____
_____
_____

Please attach the CFIA permit.
Please describe any CFIA permit conditions:

_____
_____
_____

1.2 Please complete the table below:

Name of Biological agent(s)*	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time? (in Litres)	Source/ Supplier	PHAC or CFIA Containment Level
Lactobacillus spp.	☐ Yes ⊗ No	☐ Yes ⊗ No	☐ Yes ⊗ No	0.1 L	Human	⊗ 1 ☐ 2 ☐ 2+ ☐ 3
****Bifidobacterium* spp.	☐ Yes ⊗ No	☐ Yes ⊗ No	☐ Yes ⊗ No	0.1 L	Human	⊗ 1 ☐ 2 ☐ 2+ ☐ 3
****Atopobium vaginae*	⊗ Yes ☐ No	☐ Yes ⊗ No	☐ Yes ⊗ No	0.1 L	Human	☐ 1 ⊗ 2 ☐ 2+ ☐ 3
****Gardnerella vaginalis*	⊗ Yes ☐ No	☐ Yes ⊗ No	☐ Yes ⊗ No	0.1 L	Human	☐ 1 ⊗ 2 ☐ 2+ ☐ 3
****Enterococcus faecalis*	☐ Yes ⊗ No	☐ Yes ⊗No	☐ Yes ⊗ No	0.1 L	Human	⊗ 1 ☐ 2 ☐ 2+ ☐ 3
****Enterococcus faecium*	⊗ Yes ☐ No	☐ Yes ⊗ No	☐ Yes ⊗ No	0.1 L	Human	☐ 1 ⊗ 2 ☐ 2+ ☐ 3
****Prevotella melaninogenica*	☐ Yes ⊗ No	☐ Yes ⊗No	☐ Yes ⊗ No	0.1 L	Human	⊗ 1 ☐ 2 ☐ 2+ ☐ 3

*Please attach a Material Safety Data Sheet or equivalent from the supplier.
****MSDS NOT available**

See E-mail

2.0 Cell Culture

2.1 Does your work involve the use of cell cultures? ⊗ YES ☐ NO
If no, please proceed to Section 3.0

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	☐ Yes ⊗ No		Not applicable
Rodent	☐ Yes ⊗ No		
Non-human primate	☐ Yes ⊗ No		
Other (specify)	☐ Yes ⊗ No		

2.3 Please indicate the type of established cells that will be grown in culture in:

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Supplier / Source
Human	⊗ Yes ☐ No	VK2 (vaginal epithelial), CaCo-2 (epithelial)	ATCC
Rodent	☐ Yes ⊗ No		
Non-human primate	☐ Yes ⊗ No		
Other (specify)	☐ Yes ⊗ No		

*Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see www.atcc.org)

2.4 For above named cell types(s) indicate PHAC or CFIA containment level required ☐ 1 ⊗ 2 ☐ 2+ ☐ 3

3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials? ⊗ YES ☐ NO
If no, please proceed to Section 4.0

3.2 Indicate in the table below the Human Source Material to be used.

Human Source Material	**Source/Supplier /Company Name**	**Is Human Source Material Infected With An Infectious Agent? YES/NO**	**Name of Infectious Agent (If applicable)**	**PHAC or CFIA Containment Level (Select one)**
Human Blood (whole) or other Body Fluid	Patient	☐ Yes ⊗ Unknown	N/A	O 1 ⊗ 2 ☐ 2+ O 3
Human Blood (fraction) or other Body Fluid		☐ Yes ☐ Unknown		O 1 O 2 ☐ 2+ O 3
Human Organs or Tissues (unpreserved)		☐ Yes ☐ Unknown		O 1 O 2 ☐ 2+ O 3
Human Organs or Tissues (preserved)		Not Applicable		Not Applicable

4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0? ⊗ YES ☐ NO If no, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done? ⊗ YES, complete table below ☐ NO

Bacteria Used for Cloning *	Plasmid(s) **	Source of Plasmid	Gene Transfected	Describe the change that results from transformation or tranfection
E. coli DH5alpha *Lactobacillus* spp.	pTRK785	T. Klaenhammer	LINAB10564	*Unknown*
E. coli DH5alpha *Lactobacillus* spp.	pLi50 pG+Host5 pBlueScript II	J. McCormick	Peg 1499 Peg 1498-1505 Peg 918-924	*Unknown*

* Please attach a Material Data Sheet or equivalent if available.
** Please attach a plasmid map.

4.3 Will genetic modification(s) involving viral vectors be made? ☐ YES, complete table below ⊗ NO

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results from transduction

* Please attach a Material Safety Data Sheet or equivalent.

4.4 Will genetic sequences from the following be involved?

- HIV ☐ YES, please specify _____ ☐ NO
- HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens O YES, specify _____ ☐ NO
- SV 40 Large T antigen ☐ YES ☐ NO
- E1A oncogene ☐ YES ☐ NO
- Known oncogenes ☐ YES, please specify _____ ☐ NO

- Other human or animal pathogen and or their toxins YES, please specify _____ NO

4.5 Will virus be replication defective? YES NO

4.6 Will virus be infectious to humans or animals? YES NO

4.7 Will this be expected to increase the containment level required? YES NO

5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent? YES ⊗ NO
(including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)
If no, please proceed to Section 6.0

5.2 If YES, please specify which biological agent will be used: _____
Please attach a full description of the biological agent.

5.2 Will the biological agent be able to replicate in the host? YES NO

5.3 How will the biological agent be administered? _____

5.4 Please give the Health Care Facility where the clinical trial will be conducted:_____

5.5 Has human ethics approval been obtained? YES, number: _____ NO PENDING

6.0 Animal Experiments

6.1 Will live animals be used? YES ⊗ NO If no, please proceed to section 7.0

6.2 Name of animal species to be used_____

6.3 AUS protocol # _____

6.4 Will any of the agents listed in section 4.0 be used in live animals YES, specify: _____ NO

6.5 Will the agent(s) be shed by the animal: YES NO, please justify:

_____

_____

7.0 Use of Animal species with Zoonotic Hazards

7.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)? YES ⊗ No If no, please proceed to section 8.0

7.2 Please specify the animal(s) used:

- Pound source dogs YES NO
- Pound source cats YES NO
- Cattle, sheep or goats YES, please specify species _____ NO
- Non-human primates YES, please specify species _____ NO
- Wild caught animals YES, please specify species & colony # _____ NO
- Birds YES, please specify species _____ NO
- Others (wild or domestic) YES, please specify _____ NO

8.0 Biological Toxins

8.1 Will toxins of biological origin be used? ⊗ YES NO If no, please proceed to Section 9.0

8.2 If YES, please name the toxin(s) _Aflatoxin B1, aflatoxin M1, ochratoxin A_____
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

8.3 What is the LD_{50} (specify species) of the toxin _Aflatoxin B1 = 9 mg/kg (oral, mouse), aflatoxin M1 = 0.3 mg/kg (oral, duckling), ochratoxin A = 20 mg/kg (oral, rat) _____

8.4 How much of the toxin is handled at one time*? _< 1 mg per toxin _____

8.5 How much of the toxin is stored*? _1 mg per toxin _____

8.6 Will any biological toxins be used in live animals? YES, Please provide details:_____ ⊗ NO

*For information on biosecurity requirements, please see:
http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf

9.0 Insects

9.1 Do you use insects? YES ⊗ NO If no, please proceed to Section 10.0

9.2 If YES, please give the name of the species. _____

9.3 What is the origin of the insect? _____

9.4 What is the life stage of the insect? _____

9.5 What is your intention? Initiate and maintain colony, give location: _____
O "One-time" use, give location: _____

9.6 Please describe the risk (if any) of escape and how this will be mitigated:
_____
_____

9.7 Do you use insects that require a permit from the CFIA permit? YES NO
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:
_____
_____

10.0 Plants

10.1 Do you use plants? YES ⊗ NO If no, please proceed to Section 11.0

10.2 If YES, please give the name of the species. _____

10.3 What is the origin of the plant? _____

10.4 What is the form of the plant (seed, seedling, plant, tree...)? _____

10.5 What is your intention? Grow and maintain a crop O "One-time" use

10.6 Do you do any modifications to the plant? YES NO
If yes, please describe: _____
_____

10.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:

_____

_____

_____

10.8 Is the CFIA permit attached? YES NO

If YES, Please attach the CFIA permit & describe any CFIA permit conditions:

_____

_____

11.0 Import Requirements

11.1 Will any of the above agents be imported? YES, please give country of origin_____ ⊗ NO

If no, please proceed to Section 12.0

11.2 Has an Import Permit been obtained from HC for human pathogens? YES NO

11.3 Has an import permit been obtained from CFIA for animal or plant pathogens? YES NO

11.4 Has the import permit been sent to OHS? YES, please provide permit # _____ NO

12.0 Training Requirements for Personnel Named on Form

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS:

- Biosafety
- Laboratory and Environmental/Waste Management Safety
- WHMIS (Western or equivalent)
- Employee Health and Safety Orientation

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biological agents in Sections 1.0 to 9.0 have been trained.

SIGNATURE _____

13.0 Containment Levels

13.1 For the work described in sections 1.0 to 9.0, please indicate the highest HC or CFIA Containment Level required. 1 ⊗ 2 2+ 3

13.2 Has the facility been certified by OHS for this level of containment?

⊗ YES, permit # if on-campus_____

NO, please certify

NOT REQUIRED for Level 1 containment

14.0 Procedures to be Followed

14.1 As the Principal Investigator, I will ensure that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 & 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at http://www.wph.uwo.ca/

SIGNATURE _____ Date: 3 Dec 2010

14.2 Please describe additional risk reduction measures will be taken beyond containment level 1, 2, 2+ or 3 measures, that are unique to this agent.

_____

_____

_____

14.3 Please outline what will be done if there is an exposure to the biological agents listed, such as a needlestick injury:

Appropriate precautions and first aid measures will be taken, incident will be reported to Occupational Health

15.0 Approvals

1) UWO Biohazards Subcommittee: SIGNATURE: _____
Date: _____

2) Safety Officer for the University of Western Ontario
SIGNATURE: _____
Date: _____

3) Safety Officer for Institution where experiments will take place (if not UWO):
SIGNATURE: _____
Date: Dec 10 2010

Approval Number: _____ Expiry Date (3 years from Approval): _____

Special Conditions of Approval:

Appendices

List of Additional Strains: *Lactobacillus*, *Bfidobacterium* and *E. coli* strains

Plasmids Used for Cloning

MSDS *Lactobacillus* species

MSDS DH5alpha Competent Cells

MSDS Aflatoxin M_1

MSDS Aflatoxin B_1

MSDS Animal Cell Cultures

MSDS Ochratoxin A

ATCC Reference Information:

- Atopobium vaginae
- Enterococcus faecalis
- Enterococcus faecium
- Gardnerella vaginalis

List of Additional Strains

Lactobacillus Strains

L. acidophilus
L. amylovorus
L. brevis
L. bulgaricus
L. casei
L. crispatus
L. delbrueckii subsp. *delbrueckii*
L. delbrueckii subsp. *bulgaricus*
L. delbrueckii subsp. *lactis*
L. gasseri
L. helveticus
L. iners
L. fermentum
L. jensenii
L. johnsonii
L. plantarum
L. paracasei subsp. *paracasei*
L. rhamnosus
L. reuteri

Bifidobacterium Strains

B. adolescentis
B. animalis
B. longum

Escherichia Strains

E. coli DH5α

Lactobacillus spp. - Material Safety Data Sheets (MSDS)

MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

SECTION I - INFECTIOUS AGENT

NAME: ***Lactobacillus* spp.**

SYNONYM OR CROSS REFERENCE: *L. acidophilus, L. bifidus, L.bulgaricus, L. casei, L. viridescens, L. helveitcus, L. plantarum*

CHARACTERISTICS: Gram-positive large rods, non-spore forming, anaerobic or microaerophilic, occur singly or in pairs

SECTION II - HEALTH HAZARD

PATHOGENICITY: Very rarely pathogenic; part of normal flora in man and animals (mouth, vagina, and intestinal tract); in the oral cavity, associated with dental caries but no known etiologic role; have been reported to cause endocarditis, neonatal meningitis and bacteremia

EPIDEMIOLOGY: Worldwide

HOST RANGE: Normal flora of humans and animals

INFECTIOUS DOSE: Not known

MODE OF TRANSMISSION: Not known

INCUBATION PERIOD: Not known

COMMUNICABILITY: Not transmitted from person-to-person

SECTION III - DISSEMINATION

RESERVOIR: Widespread in nature, humans and animals

ZOONOSIS: None

VECTORS: None

SECTION IV - VIABILITY

DRUG SUSCEPTIBILITY: Susceptible to antibiotics

DRUG RESISTANCE: vancomycin-resistant strains have been isolated

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to many disinfectants - 1% sodium hypochlorite and 70% ethanol, glutaraldehyde, formaldehyde, iodines

PHYSICAL INACTIVATION: Susceptible to moist heat (121° C for at least 15 min) and dry heat (160-170° C for at least 1 hour)

SURVIVAL OUTSIDE HOST: Feces - 2 days; cheese - 105 years;

SECTION V - MEDICAL

SURVEILLANCE: None

FIRST AID/TREATMENT: Wash area in contact with warm water and soap (omit soap for mucous membrane exposure); drug therapy (penicillin and aminoglycosides)

IMMUNIZATION: None

PROPHYLAXIS: None

SECTION VI - LABORATORY HAZARDS

LABORATORY-ACQUIRED INFECTIONS: No reported cases of laboratory infections with *Lactobacillus* spp.

SOURCES/SPECIMENS: Dairy products and other food, feces, specimens from the mouth, vaginal swabs

PRIMARY HAZARDS: Hazard of infection from this organism is low, however, it is prudent to avoid accidental inoculation and ingestion

SPECIAL HAZARDS: None

SECTION VII - RECOMMENDED PRECAUTIONS

CONTAINMENT REQUIREMENTS: No special design features beyond those suitable for a well designed and functional laboratory with good microbiology practices; this level of containment does not allow for any additional risk that may present for those persons with pre-existing disease, compromised immunity or who are pregnant

PROTECTIVE CLOTHING: Laboratory coat; gloves when contact with infected material is unavoidable

OTHER PRECAUTIONS: None

SECTION VIII - HANDLING INFORMATION

SPILLS: Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent paper towel and apply 1% sodium hypochlorite, starting at perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

DISPOSAL: Decontaminate before disposal; steam sterilization, chemical disinfection

STORAGE: In sealed containers that are appropriately labelled

SECTION IX - MISCELLANEOUS INFORMATION

Date prepared: March, 2001

Prepared by: Office of Laboratory Security, PHAC

Although the information, opinions and recommendations contained in this Material Safety Data Sheet are compiled from sources believed to be reliable, we accept no responsibility for the accuracy, sufficiency, or reliability or for any loss or injury resulting from the use of the information. Newly discovered hazards are frequent and this information may not be completely up to date.

Date Modified: 2001-04-23

Bacteria

ATCC® Number: **BAA-55™** Order this Item Price: **$255.00**

Organism:	*Atopobium vaginae* Rodriguez Jovita et al.
Designations:	CCUG 38953 [CIP 106431, DSM 15829]
Isolation:	vaginal flora from a healthy woman, Goteborg, Sweden, 1998 [49736]
Depositor:	CCUG
History:	ATCC <<--CCUG<<--I. Mattsby
Biosafety Level:	1
Shipped:	freeze-dried
Growth Conditions:	ATCC medium1377: Haemophilus ducreyi medium **Temperature:** 37.0°C **Atmosphere:** Anaerobic
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Cross References:	Nucleotide (GenBank) : ACGK01000000 Atopobium vaginae DSM 15829, whole genome shotgun sequencing project Nucleotide (GenBank) : Y17195 16S rRNA sequence
Type Strain:	yes(type strain)
Comments:	This strain has been sequenced as a reference genome for the NIH Human Microbiome Project.
References:	49736: Rodriguez Jovita M, et al. Characterization of a novel Atopobium isolate from the human vagina: description of Atopobium vaginae sp. nov.. Int. J. Syst. Bacteriol. 49: 1573-1576, 1999. PubMed: 10555338

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Bacteria

ATCC® Number: **49145™** Order this Item Price: **$40.00**

Preceptrol® Culture

Organism:	*Gardnerella vaginalis* (Gardner and Dukes) Greenwood and Pickett
Designations:	AmMS 117
Isolation:	clinical isolate
Depositor:	Baxter Healthcare Corporation
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium814: GC medium Alternate medium 1685: NYC III medium **Temperature:** 37.0°C **Atmosphere:** 5%CO_2
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Applications:	quality control strain quality control strain for MicroScan [Reg TM] products
Related Products:	purified DNA: ATCC 49145D-5

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Bio-materials management; basic repository to compl partnership-level services

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Preceptrol® Culture

Organism:	*Gardnerella vaginalis* (Gardner and Dukes) Greenwood and Pickett
Designations:	AmMS 117
Isolation:	clinical isolate
Depositor:	Baxter Healthcare Corporation
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium814: GC medium Alternate medium 1685: NYC III medium **Temperature:** 37.0°C **Atmosphere:** 5%CO_2
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Applications:	quality control strain quality control strain for MicroScan [Reg TM] products
Related Products:	purified DNA: ATCC 49145D-5

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Bacteria

ATCC® Number: **23241™** Order this Item Price: **$255.00**

Organism:	*Enterococcus faecalis* (Andrewes and Horder) Schleifer and Kilpper-Balz deposited as *Streptococcus faecalis* Andrewes and Horder
Designations:	G-K [B-14]
Isolation:	urine of patient with pyelonephritis
Depositor:	RG Wittler
History:	ATCC <<--RG Wittler<<--L. Guze
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium260: Trypticase soy agar with defibrinated sheep blood **Temperature:** 37.0°C
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Comments:	Parent strain of Streptococcus faecalis L-Phase variant G-K L (ATCC 23242)
References:	9649: Montgomerie JZ, et al. The effects of antibiotics on the protoplast and bacterial forms of Streptococcus faecalis. J. Lab. Clin. Med. 68: 543-551, 1966. PubMed: 4958832 10118: Guze LB, et al. Pyelonephritis. I. Observations on the course of chronic non-obstructed enterococcal infection in the kidnev of the rat. Yale J. Biol. Med. 33: 372-385, 1961. PubMed: 13710079 10663: Cohen RL, et al. Modified biochemical tests for characterization of L-phase variants of bacteria. Appl. Microbiol. 16: 1655-1662, 1968. PubMed: 4302280

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Bacteria

ATCC® Number: **19434™** Order this Item Price: **$40.00**

Preceptrol® Culture

Organism:	*Enterococcus faecium* (Orla-Jensen) Schleifer and Kilpper-Balz deposited as *Streptococcus* sp.
Designations:	NCTC 7171 [DSM 20477, JCM 8727, NCDO 942]
Depositor:	NCTC
History:	ATCC <<--NCTC<<--A. Grumbach
Biosafety Level:	2
Shipped:	freeze-dried
Growth Conditions:	ATCC medium44: Brain heart infusion agar or brain heart infusion **Temperature:** 37.0°C
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Antigenic Properties:	serotype 11
Cross References:	Nucleotide (GenBank) : AF029771 Enterococcus faecium clone pEMH19 insertion sequence IS1485 right junction. Nucleotide (GenBank) : AX109875 Sequence 608 from Patent WO0123604. Nucleotide (GenBank) : AJ387913 Enterococcus faecium partial sodA gene for superoxide dismutase, strain CIP 103014 T (ATCC 19434). Nucleotide (GenBank) : X87180 E.faecium 16S-23S rRNA spacer DNA, strain ATCC 19434. Nucleotide (GenBank) : AH005622 Enterococcus faecium. Nucleotide (GenBank) : AX109559 Sequence 292 from Patent WO0123604. Nucleotide (GenBank) : AX109888 Sequence 621 from Patent WO0123604. Nucleotide (GenBank) : AF029770 Enterococcus faecium clone pEMH19 insertion sequence IS1485 left junction. Nucleotide (GenBank) : AX111137 Sequence 1870 from Patent WO0123604. Nucleotide (GenBank) : X87181 E.faecium 23S-5S rRNA spacer DNA, strain ATCC 19434. Nucleotide (GenBank) : L78127 Enterococcus faecium genomic DNA fragment.
Type Strain:	yes(type strain)
Comments:	Grumbach serotype 11
Applications:	testing antimicrobial handwashing formulations [32196]

Related Links
NCBI Entrez Search
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Frequently Asked Questions
Material Transfer Agreement
Technical Support
Related Products

Risk Group Classification for Infectious Agents

Leave feedback about this database (questions, comments or suggestions) >

< Main Riskgroup Page and Definitions
SEARCH: Bacteria > Viruses > Fungi > Parasites >

Bacteria Search Results

Genus: Bifidobacterium	Species: dentium	
	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	
United Kingdom 2004:		
Germany 2001:	2	
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No
MSDS:		

American Biological Safety Association, 1200 Allanson Road, Mundelein, IL 60060-3808
Phone: 1-866-425-1385 (toll free), 847-949-1517 Fax: 847-566-4580 E-mail: info@absa.org

Genus: Atopobium	Species: rimae	
	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No
MSDS:		

Genus: Atopobium	Species: vaginae	
	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No
MSDS:		

American Biological Safety Association, 1200 Allanson Road, Mundelein, IL 60060-3808
Phone: 1-866-425-1385 (toll free), 847-949-1517 **Fax:** 847-566-4580 **E-mail: info@absa.org**

Risk Group Classification for Infectious Agents

Leave feedback about this database (questions, comments or suggestions) >

< Main Riskgroup Page and Definitions
SEARCH: Bacteria > Viruses > Fungi > Parasites >

Bacteria Search Results

Genus: Gardnerella **Species:** vaginalis

	Risk Group Level	Notes
Australia/New Zealand 2002:	2	
Belgium 2004:	2	
Switzerland 2003:	2	(Haemophilus vaginalis)
United Kingdom 2004:	2	
Germany 2001:	2	AR
NIH 2002		
European Community 2000:	2	
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes **Animal Pathogen:** No **Plant Pathogen:** No		**Select Agent CDC:** No **Select Agent USDA:** No
MSDS:		

American Biological Safety Association, 1200 Allanson Road, Mundelein, IL 60060-3808
Phone: 1-866-425-1385 (toll free), 847-949-1517 **Fax:** 847-566-4580 **E-mail: info@absa.org**

Genus: Enterococcus **Species:** faecalis

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:	2	
Switzerland 2003:	2	(Streptococcus faecalis)
United Kingdom 2004:		
Germany 2001:	2	
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:	2	
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No

MSDS:

Genus: Enterococcus **Species:** faecium

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	TA (Streptococcus faecium)
United Kingdom 2004:		
Germany 2001:	2	
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:	2	
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No

MSDS:

Genus: Enterococcus **Species:** flavescens

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes Animal Pathogen: No Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No

MSDS:

Genus: Enterococcus **Species:** gallinarum

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	t (Streptococcus gallinarum)
United Kingdom 2004:		
Germany 2001:	2	t
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: No Animal Pathogen: Yes Plant Pathogen: No		Select Agent CDC: No Select Agent USDA: No

MSDS:

Genus: Enterococcus **Species:** hirae

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		

Switzerland 2003:	2	(Bacteroides denticola)
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes **Animal Pathogen:** No **Plant Pathogen:** No		**Select Agent CDC:** No **Select Agent USDA:** No
MSDS:		

Genus: Prevotella **Species:** disiens

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	(Bacteroides disiens)
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes **Animal Pathogen:** No **Plant Pathogen:** No		**Select Agent CDC:** No **Select Agent USDA:** No
MSDS:		

Genus: Prevotella **Species:** intermedia

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	(Bacteroides intermedius)
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: No **Animal Pathogen:** No **Plant Pathogen:** No		**Select Agent CDC:** No **Select Agent USDA:** No
MSDS:		

Genus: Prevotella **Species:** loescheii

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	(Bacteroides loescheii)
United Kingdom 2004:		
Germany 2001:		
NIH 2002		
European Community 2000:		
Singapore 2004:		Singapore Schedule:
Japan:		
Human Pathogen: Yes **Animal Pathogen:** No **Plant Pathogen:** No		**Select Agent CDC:** No **Select Agent USDA:** No
MSDS:		

Genus: Prevotella **Species:** melaninogenica

	Risk Group Level	Notes
Australia/New Zealand 2002:		
Belgium 2004:		
Switzerland 2003:	2	(Bacteroides melaninogenicus, Bacteroides melaninogenicus subsp. melaninogenicus)
United Kingdom 2004:		
Germany 2001:		
NIH 2002		

MATERIAL SAFETY DATA SHEET

Revised 9/30/03
Replaces 9/05/03
Printed 9/30/03

LIBRARY EFFICIENCY DH5ALPHA COMPETENT CELLS
INVITROGEN CORPORATION
MSDS ID: 18263

1. PRODUCT AND COMPANY INFORMATION

INVITROGEN CORPORATION
1600 FARADAY AVE.
CARLSBAD, CA 92008
760/603-7200

GIBCO PRODUCTS
INVITROGEN CORPORATION
3175 STALEY ROAD P.O. BOX 68
GRAND ISLAND, NY 14072
716/774-6700

INVITROGEN CORPORATION
3 FOUNTAIN DR.
INCHINNAN BUSINESS PARK
PAISLEY, PA4 9RF
SCOTLAND
44-141 814-6100

INVITROGEN CORPORATION
P.O. BOX 12-502
PENROSE
AUCKLAND 1135
NEW ZEALAND
64-9-579-3024

INVITROGEN CORPORATION
2270 INDUSTRIAL ST.
BURLINGTON, ONT
CANADA L7P 1A1
905/335-2255

EMERGENCY NUMBER (SPILLS, EXPOSURES): 301/431-8585 (24 HOUR)
800/451-8346 (24 HOUR)
NON-EMERGENCY INFORMATION: 800/955-6288

Product Name: LIBRARY EFFICIENCY DH5ALPHA COMPETENT CELLS
Stock Number: 18263012

NOTE: If this product is a kit or is supplied with more than one material, please refer to the MSDS for each component for hazard information.

Product Use:
These products are for laboratory research use only and are not intended for human or animal diagnostics, therpeutic, or other clinical uses.

Synonyms:
Not available.

2. COMPOSITION, INFORMATION ON INGREDIENTS

The following list shows components of this product classified as hazardous based on physical properties and health effects:

Component	CAS No.	Percent
DIMETHYL SULFOXIDE	67-68-5	3 - 7

3. HAZARDS IDENTIFICATION

********** EMERGENCY OVERVIEW **********
Warning!
Irritant.
Harmful if absorbed.
****

Potential Health Effects:
Eye:
Can cause moderate irritation, tearing and reddening, but not likely to permanently injure eye tissue.

Skin:
Can cause moderate skin irritation, defatting, and dermatitis. Not likely to cause permanent damage.
Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause minor systemic damage.

Inhalation:
Can cause moderate respiratory irritation, dizziness, weakness, fatigue, nausea and headache.
No toxicity expected from inhalation.

Ingestion:
Irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.

Chronic:
No data on cancer.

4. FIRST AID MEASURES

Eye:
Flush eyes with plenty of water for at least 20 minutes retracting eyelids often. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention.

Skin:
Wash with soap and water. Get medical attention if irritation develops or persists.

Inhalation:
Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately.

Ingestion:
Do not induce vomiting and seek medical attention immediately. Drink two

4. FIRST AID MEASURES (CONT.)

glasses of water or milk to dilute. Provide medical care provider with this MSDS.

Note To Physician:
Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flashpoint Deg C:
Not available.

Upper Flammable Limit %:
Not available.

Lower Flammable Limit %:
Not available.

Autoignition Temperature Deg C:
Not available.

Extinguishing Media:
Use alcohol resistant foam, carbon dioxide, dry chemical, or water spray when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the fire. Do not direct a water stream directly into the hot burning liquid. DMSO undergoes a violent exothermic reaction on mixing with copper wool and trichloroacetic acid. On mixing with potassium permanganate it will flash instantaneously. It reacts violently with: acid halides, cyanuric chloride, silicon tetrachloride, phosphorus trichloride and trioxide, thionyl chloride, magnesium perchlorate, silver fluoride, methyl bromide, iodine pentafluoride, nitrogen periodate, diborane, sodium hydride, perchloric and periodic acids. When heated above its boiling point, DMSO degrades giving off formaldehyde, methyl mercaptan, and sulfur dioxide.

Firefighting Techniques/Equipment:
Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

Hazardous Combustion Products:
Carbon dioxide Carbon monoxide Sulfur containing gases

6. ACCIDENTAL RELEASE MEASURES

Accidental releases may be subject to special reporting requirements and other regulatory mandates. Refer to Section 8 for personal protection equipment recommendations.

6. ACCIDENTAL RELEASE MEASURES (CONT.)

Spill Cleanup:
Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section VIII of this MSDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill.
Ventilate the contaminated area.
Absorb spill. Common absorbent materials should be effective. Deposit in appropriate containers for removal and disposal.

7. HANDLING AND STORAGE

Storage of some materials is regulated by federal, state, and/or local laws.

Storage Pressure:
Ambient

Handling Procedures:
Harmful or irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area.
Keep closed or covered when not in use.

Storage Procedures:
Store in a cool dry ventilated location. Isolate from incompatible materials and conditions. Keep container(s) closed.
Suitable for most general chemical storage areas.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Limits:

Component	OSHA PEL (ppm)	AGCIH TWA (ppm)
DIMETHYL SULFOXIDE	Not established.	Not established.

Engineering Controls:
Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure.

Personal Protective Equipment:

Eye:
Safety glasses should be the minimum eye protection.
Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash

8. EXPOSURE CONTROLS, PERSONAL PROTECTION (CONT.)

goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.

Skin:
Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work. Gloves should be used as minimum hand protection.

Respiratory:
Use supplied-air respiratory equipment as required.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/physical state:	Liquid solution / suspension
Odor:	No odor.
	Not established.
	Not established.
	Not established.
	Not established.
	Not established.
	Not established.
Specific Gravity/Density:	Not established.
Octanol/water Partition Coeff:	Not established.
Volatiles:	Not established.
Evaporation Rate:	Not established.
Viscosity:	Not established.

10. STABILITY AND REACTIVITY

Stability:
Stable under normal conditions.

Conditions to Avoid:
Strong oxidizing agents. Temperatures above the high flash point of this combustible material in combination with sparks, open flames, or other sources of ignition. Strong alkalies. DMSO undergoes a violent exothermic reaction on mixing with copper wool and trichloroacetic acid. On mixing with potassium permanganate it will flash instantaneously. It reacts violently with: acid halides, cyanuric chloride, silicon tetrachloride, phosphorus trichloride and trioxide, thionyl chloride, magnesium perchlorate, silver fluoride, methyl bromide, iodine pentafluoride, nitrogen periodate, diborane, sodium hydride, perchloric and periodic acids. When heated above its boiling point, DMSO

10. STABILITY AND REACTIVITY (CONT.)

degrades giving off formaldehyde, methyl mercaptan, and sulfur dioxide.

Hazardous Decomposition Products:
Carbon monoxide. Carbon dioxide. Sulfur containing gases.

Hazardous Polymerization:
Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

Dermal/Skin:
DIMETHYL SULFOXIDE: 40 GM/KG

Inhalation/Respiratory:
Not determined.

Oral/Ingestion:
DIMETHYL SULFOXIDE: 14,500 MG/KG

Target Organs: Blood. Eyes. Skin.

Carcinogenicity:

NTP:
Not tested.

IARC:
Not listed.

OSHA:
Not regulated.

Other Toxicological Information

12. Ecological Information

Ecotoxicological Information: No ecological information available.

Environmental Fate (Degradation, Transformation, and Persistence):
Bioconcentration is not expected to occur.
Biodegrades slowly.

13. DISPOSAL CONSIDERATIONS

Regulatory Information:
Not applicable.

Disposal Method:
Clean up and dispose of waste in accordance with all federal, state, and local environmental regulations.
Dispose of by incineration following Federal, State, Local, or Provincial regulations.

14. TRANSPORT INFORMATION

Proper Shipping Name: Not Determined.
Subsidiary Hazards:

15. REGULATORY INFORMATION

UNITED STATES:

TSCA:
This product is solely for research and development purposes only and may not be used, processed or distributed for a commercial purpose. It may only be handled by technically qualified individuals.

Prop 65 Listed Chemicals: PROP 65 PERCENT
No Prop 65 Chemicals.

No 313 Chemicals

CANADA:

DSL/NDSL:
Not determined.

COMPONENT	WHMIS Classification
DIMETHYL SULFOXIDE	D2B

EUROPEAN UNION:

PRODUCT RISK PHRASES:
None assigned.

PRODUCT SAFETY PHRASES:
Not applicable.

PRODUCT CLASSIFICATION:

15. REGULATORY INFORMATION (CONT.)

Not classified

Component	EINECS Number
DIMETHYL SULFOXIDE	200-664-3

16. OTHER INFORMATION

HMIS Rating 0-4:
FIRE: Not determined.
HEALTH: Not determined.
REACTIVITY: Not determined.

Abbreviations
N/A - Data is not applicable or not available
SARA - Superfund and Reauthorization Act
HMIS - Hazard Material Information System
WHMIS - Workplace Hazard Materials Information System
NTP - National Toxicology Program
OSHA - Occupational Health and Safety Administration
IARC - International Agency for Research on Cancer
PROP 65 - California Safe Drinking Water and Toxic Enforcement Act of 1986
EINECS - European Inventory of Existing Commercial Chemical Substances

The above information was acquired by diligent search and/or investigation and the recommendations are based on prudent application of professional judgment. The information shall not be taken as being all inclusive and is to be used only as a guide. All materials and mixtures may present unknown hazards and should be used with caution. Since Invitrogen Corporation cannot control the actual methods, volumes, or conditions of use, the Company shall not be held liable for any damages or losses resulting from the handling or from contact with the product as described herein. THE INFORMATION IN THIS MSDS DOES NOT CONSTITUTE A WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Subject: Re: Biohazardous Agents Registry Form
From: Wayne Miller <wmiller5@uwo.ca>
Date: Thu, 10 Feb 2011 16:01:43 -0500
To: Jennifer Stanley <jstanle2@uwo.ca>
CC: Shannon Mifflin <Shannon.Mifflin@sjhc.london.on.ca>, Gregor Reid <gregor@uwo.ca>

Hi Jennifer,

E-mail

Yes, please add it:
Name: *E. coli* DH5alpha
Known pathogen: NO
Known animal pathogen: NO
Known zoonotic agent: NO
Maximum quantity: 0.1 L
Source/Suppler: Invitrogen
PHAC or CFIA Contaiment level: 1

Thanks,

Wayne

Wayne L. Miller, Ph.D.
Associate Scientist,
Canadian Research & Development Centre for Probiotics, and
Lawson Health Research Institute;
Assistant Professor,
Department of Microbiology & Immunology,
University of Western Ontario;

Lawson Health Research Institute, Room F2-112
268 Grosvenor Street
London, Ontario N6A 4V2
Tel: (519) 646-6100 ext. 61365
Fax: (519) 646-6031
wmiller5@uwo.ca
www.waynemiller.ca

On 10 February 2011 15:56, Jennifer Stanley <jstanle2@uwo.ca> wrote:

> Hi there
> Thanks for this. I was able to download it.
> I noticed that E. coli dH5 alpha was not listed in Table 1.2. I can add it for you but I will need to know about how much you culture and the source (Invitrogen?).
> Regards
> Jennifer

Info on Cell Line(s)

Cell Biology

ATCC® Number:	CRL-2616™	Order this Item	Price:	$338.00

Designations:	VK2/E6E7
Depositors:	D Anderson, RN Fichorova, JG Rheinwald
Biosafety Level:	2 [Cells contain human Papilloma viral sequences]
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial
Source:	**Organ:** vagina **Tissue:** mucosa **Cell Type:** epithelialHPV-16 E6/E7 transformed
Cellular Products:	cytokeratins 8 (CK8), 10 (CK10), 13 (CK13), 18 (CK18) and 19 (CK19) [52983] macrophage colony-stimulating factor (M-CSF); transforming growth factor beta1; interleukin 8 (IL-8); prostaglandin E2; the secretory leukoproteinase inhibitor; polymeric immunoglobulin receptor [52984]
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Restrictions:	The line is available with the following restrictions: 1. This cell line was deposited at the ATCC by Dr. Deborah Anderson of The Brigham and Women's Hospital, Inc. and is provided for academic research purposes only. Neither the cell line nor products derived from it may be sold or used for commercial purposes, including screening of compounds. Nor can the cells be distributed to third parties for purposes of sale, or producing for sale, cells or their products. The cells are provided as a service to the research community. They are provided without warranty of merchantability or fitness for a particular purpose or any other warranty, express or implied. 2. All products derived from the cells or genetically altered forms of the cells cannot be commercialized without express written permission from the The Brigham and Women's Hospital, Inc. 3. Any proposed commercial manufacture, use, or sale of the these cells, or their products must first be approved and the terms for such commercial manufacture, use, or sale must first be negotiated with TheBrigham and Women's Hospital, Inc., Office of Corporate Sponsored Research and Licensing, 75 Francis Street, Boston, MA 02115 (617) 525-6010.
Isolation:	**Isolation date:** 1996

Related Links

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Technical Support
Related Cell Culture Products

BioProducts

Cell, microbial and molecular genomics products for the life sciences

BioServices

Bio-materials management; basic repository to complex partnership-level services

BioStandards

Biological Reference Material and Consensus Standards for the life science community

Cell Biology

ATCC® Number:	HTB-37™	Order this Item	Price:	$272.00

Designations:	Caco-2
Depositors:	J Fogh
Biosafety Level:	1
Shipped:	frozen
Medium & Serum:	See Propagation
Growth Properties:	adherent
Organism:	*Homo sapiens* (human)
Morphology:	epithelial 
Source:	**Organ:** colon **Disease:** colorectal adenocarcinoma
Cellular Products:	keratin retinoic acid binding protein 1 retinol binding protein 2
Permits/Forms:	In addition to the MTA mentioned above, other ATCC and/or regulatory permits may be required for the transfer of this ATCC material. Anyone purchasing ATCC material is ultimately responsible for obtaining the permits. Please click here for information regarding the specific requirements for shipment to your location.
Restrictions:	NaviCyte Scientific holds the exclusive commercial distribution rights to the Caco-2 cell line as deposited by the Memorial Sloan-Kettering Cancer Center (SK) with the American Type Culture Collection (ATCC). **Note:** All uses of ATCC ® HTB-37™, other than for research by a non-commercial or academic entity, require a license and use authorization from NaviCyte Scientific under its exclusive arrangement with Memorial Sloan-Kettering.
Applications:	transfection host (Nucleofection technology from Lonza Roche FuGENE® Transfection Reagents)
Receptors:	heat stable enterotoxin (Sta, E. coli), expressed epidermal growth factor (EGF), expressed
Virus Susceptibility:	Human immunodeficiency virus 1
Tumorigenic:	Yes
DNA Profile (STR):	Amelogenin: X CSF1PO: 11 D13S317: 11,13,14 D16S539: 12,13 D5S818: 12,13 D7S820: 11,12 TH01: 6 TPOX: 9,11 vWA: 16,18

Related Links

NCBI Entrez Search

Cell Micrograph

Make a Deposit

Frequently Asked Questions

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Technical Support

Related Cell Culture Products

Login Required

Product Information Sheet

MSDS FOR ANIMAL CELL CULTURES (Biosafety Level 1 or 2)

ATCC cultures are not hazardous as defined by OSHA 1910.1200. However, as live cells they are potential biohazards.

ATCC Emergency Telephone: (703) 365-2710 (24 hours)
Chemtrec: (800) 424-9300
To be used only in the event of an emergency involving a spill, leak, fire, exposure or accident.

Description

Either frozen or growing cells shipped in liquid cell culture medium (a mixture of components that may include, but is not limited to: inorganic salts, vitamins, amino acids, carbohydrates and other nutrients dissolved in water).

SECTION I

Hazardous Ingredients

Frozen cultures may contain 5 to 10% Dimethyl sulfoxide (DMSO)

SECTION II

Physical data

Pink or red aqueous liquid

SECTION III

Health hazards

For Biosafety Level 1 Cell Lines

This cell line is not known to harbor an agent known to cause disease in healthy adult humans. This cell line has **NOT** been screened for Hepatitis B, human immunodeficiency viruses or other adventitious agents. Handle as a potentially biohazardous material under at least Biosafety Level 1 containment.

For Biosafety Level 2 Cell Lines

This cell line is known to contain an agent that requires handling at Biosafety Level 2 containment [U.S. Government Publication **Biosafety in Microbiological and Biomedical Laboratories** (CDC, 1999)]. These agents have been associated with human disease. This cell line has **NOT** been screened for Hepatitis B, human immunodeficiency viruses or other adventitious agents. Cell lines derived from primate lymphoid tissue may fall under the regulations of 29 CFR 1910.1030 Bloodborne Pathogens.

SECTION IV

Fire and explosion

Not applicable

SECTION V
Reactivity data

Stable. Hazardous polymerization will not occur.

SECTION VI
Method of disposal

Spill: Contain the spill and decontaminate using suitable disinfectants such as chlorine bleach or 70% ethyl or isopropyl alcohol.
Waste disposal: Dispose of cultures and exposed materials by autoclaving at 121°C for 20 minutes. Follow all Federal, State and local regulations.

SECTION VII
Special protection information

For Biosafety Level 1 Cell Lines

Handle as a potentially biohazardous material under at least Biosafety Level 1 containment. Cell lines derived from primate lymphoid tissue may fall under the regulations of 29 CFR 1910.1030 Bloodborne Pathogens.

For Biosafety Level 2 Cell Lines

Handle as a potentially biohazardous material under at least Biosafety Level 2 containment. Cell lines derived from primate lymphoid tissue may fall under the regulations of 29 CFR 1910.1030 Bloodborne Pathogens.

SECTION VIII
Special precautions or comments

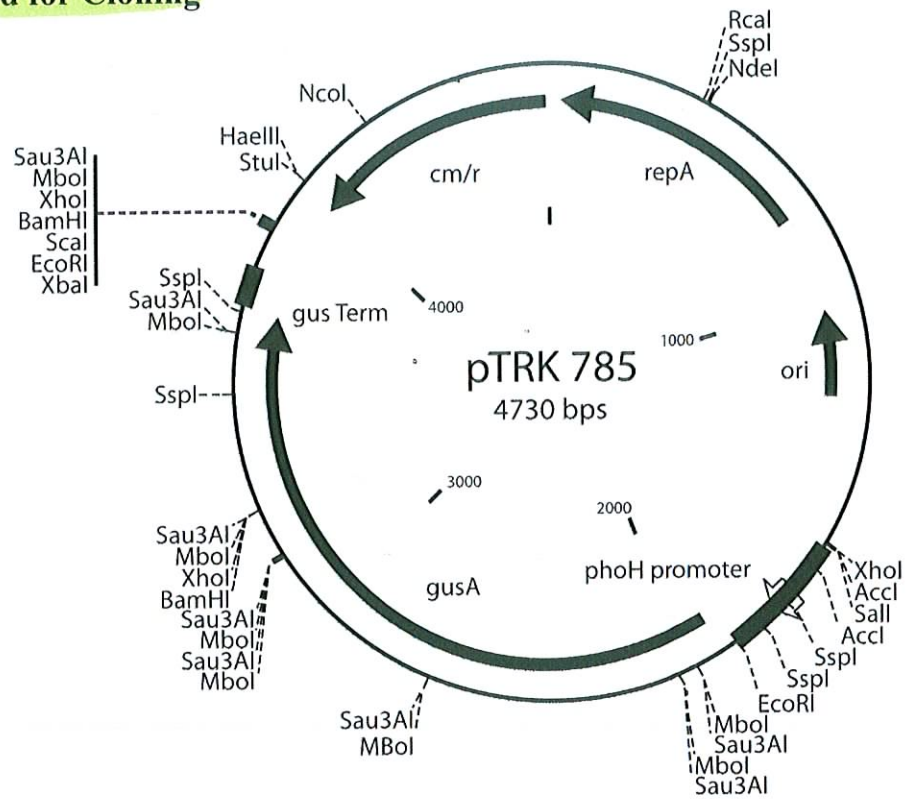
ATCC recommends that appropriate safety procedures be used when handling all cell lines, especially those derived from human or other primate material. Detailed discussions of laboratory safety procedures are provided in **Laboratory Safety: Principles and Practice** (Fleming, et al., 1995) the ATCC manual on quality control (Hay, et al., 1992), the Journal of Tissue Culture Methods (Caputo, 1988), and in the U.S. Government Publication, **Biosafety in Microbiological and Biomedical Laboratories** (CDC, 1999). This publication is available in its entirety in the Center for Disease Control Office of Health and Safety's web site at http://www.cdc.gov/od/ohs/biosfty/bmbl4/bmbl4toc.htm.

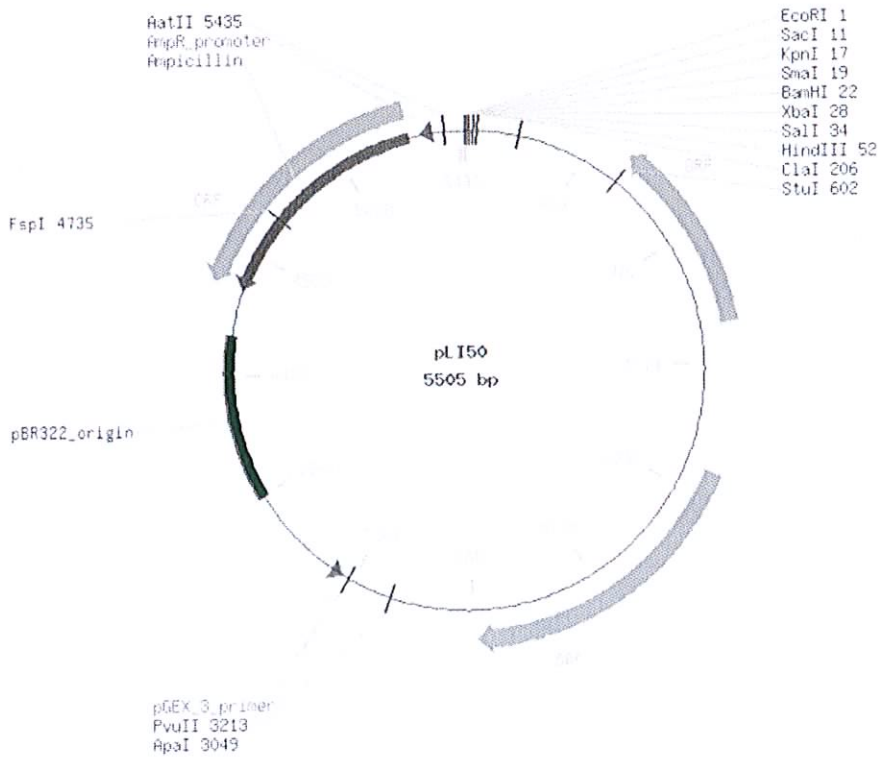
THE ABOVE INFORMATION IS CORRECT TO THE BEST OF OUR KNOWLEDGE. ALL MATERIALS AND MIXTURES MAY PRESENT UNKNOWN HAZARDS AND SHOULD BE USED WITH CAUTION. THE USER SHOULD MAKE INDEPENDENT DECISIONS REGARDING THE COMPLETENESS OF THE INFORMATION BASED ON ALL SOURCES AVAILABLE. ATCC SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR CONTACT WITH THE ABOVE PRODUCT.

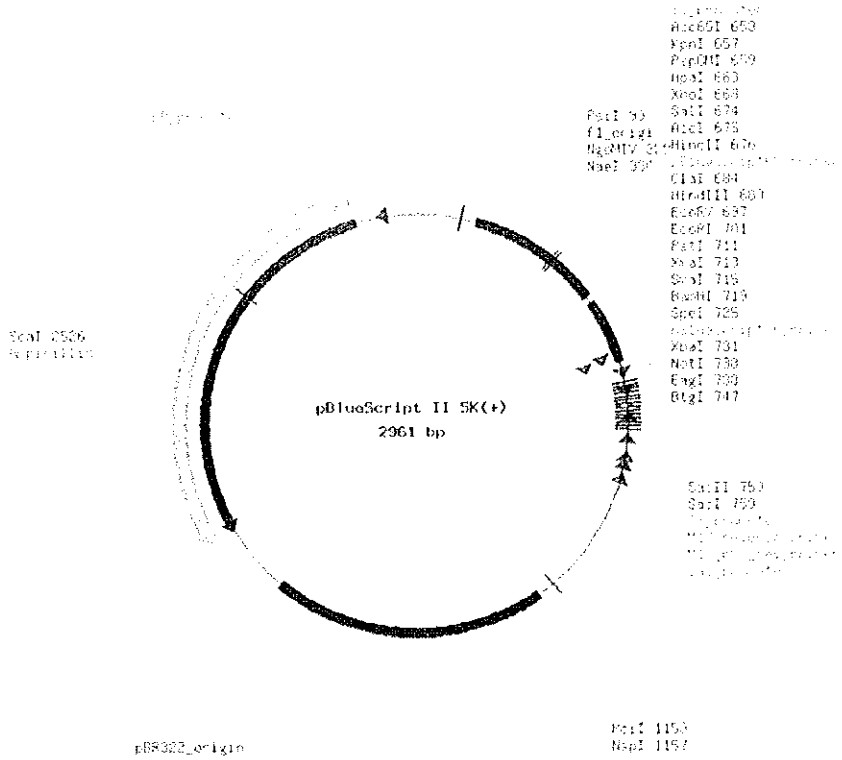
February 2002

Appendices

Plasmids Used for Cloning



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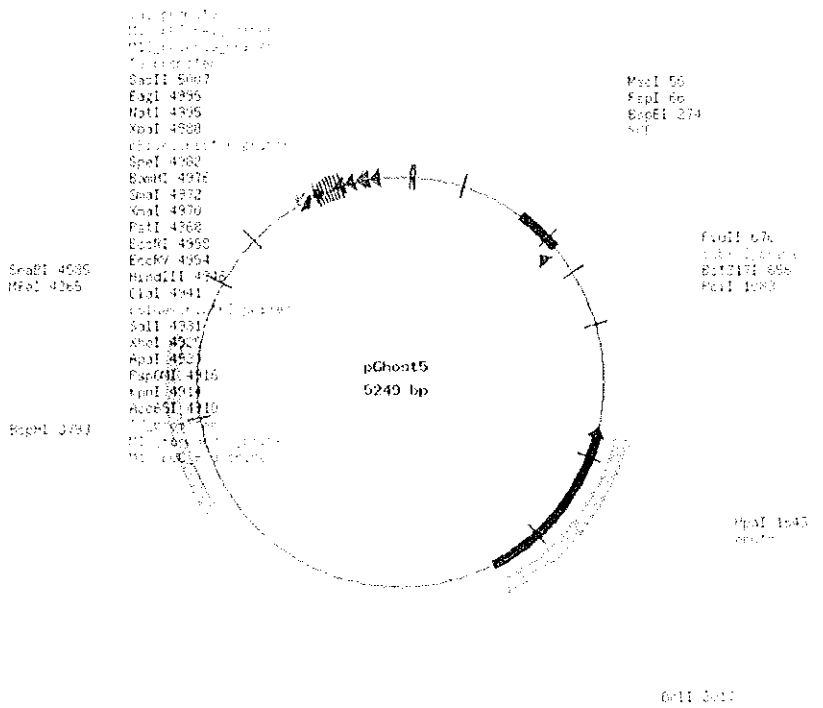
pBR322_origin


pGhost5
9249 bp

Toxins

SIGMA-ALDRICH

Material Safety Data Sheet

Version 4.2
Revision Date 11/29/2010
Print Date 12/03/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ochratoxin A

Product Number : O1877
Brand : Sigma
Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +19058299500
Fax : +19058299292
Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Liver, Kidney, Central nervous system, Blood

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and	Highly toxic by ingestion
D2A	Serious Toxic Effects	Teratogen
D2B		Carcinogen
		Moderate skin irritant
		Moderate eye irritant
		Mutagen

GHS Classification

Acute toxicity, Oral (Category 2)
Skin irritation (Category 3)
Carcinogenicity (Category 2)
Reproductive toxicity (Category 2)
Specific target organ toxicity - repeated exposure, Inhalation (Category 2)
Chronic aquatic toxicity (Category 4)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H300	Fatal if swallowed.
H316	Causes mild skin irritation.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

H413	May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

P264	Wash hands thoroughly after handling.
P281	Use personal protective equipment as required.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : N-[(3R)-(5-Chloro-8-hydroxy-3-methyl-1-oxo-7-isochromanyl)carbonyl]-L-phenylalanine

CAS-No.	EC-No.	Index-No.	Concentration
(-)-Ochratoxin A			
303-47-9	206-143-7	-	-
Ethyl acetate			
141-78-6	205-500-4	607-022-00-5	<= 2 %
Petroleum ether, Bp 40 - 70°C			
101316-46-5	309-852-0	-	<= 1 %

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas

Explosion data - sensitivity to mechanical impact
no data available

Explosion data - sensitivity to static discharge
no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Ethyl acetate	141-78-6	TWA	150 ppm	2006-11-29	Canada. British Columbia OEL
		TWAE V	400 ppm 1,440 mg/m3	2005-12-17	Canada. Ontario OELs
		TWA	400 ppm 1,440 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required				
		TWAE V	400 ppm 1,440 mg/m3	2006-12-29	Canada. Quebec OELs

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Specific engineering controls
Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	powder
Colour	light yellow

Safety data

pH	no data available
Melting/freezing point	169.0 °C (336.2 °F)
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 4.70
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - rat - 20.0 mg/kg
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans ((-)-Ochratoxin A)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity

no data available

Teratogenicity

Laboratory experiments have shown teratogenic effects.

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be fatal if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 3462 Class: 6.1 Packing group: II
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s.
Reportable Quantity (RQ): 250000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 3462 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S.
Marine pollutant: No

IATA
UN-Number: 3462 Class: 6.1 Packing group: II
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s.

15. REGULATORY INFORMATION

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
(-)-Ochratoxin A	303-47-9

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and	Highly toxic by ingestion
D2A	Serious Toxic Effects	Teratogen
D2B		Carcinogen
		Moderate skin irritant
		Moderate eye irritant
		Mutagen

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Material Safety Data Sheet

Version 4.1
Revision Date 10/26/2010
Print Date 12/03/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Aflatoxin M_1

Product Number : A6428
Brand : Sigma
Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +19058299500
Fax : +19058299292
Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Liver

WHMIS Classification

D1A Very Toxic Material Causing Immediate and Serious Toxic Effects

Highly toxic by ingestion
Highly toxic by skin absorption
Highly toxic by inhalation

GHS Classification

Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 2)
Acute toxicity, Oral (Category 2)
Carcinogenicity (Category 1B)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H300 + H310	Fatal if swallowed or in contact with skin.
H330	Fatal if inhaled.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.

P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P320	Specific treatment is urgent (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	1

Potential Health Effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : $C_{17}H_{12}O_7$

Molecular Weight : 328.27 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Aflatoxin M1			
6795-23-9	229-865-4	-	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Explosion data - sensitivity to mechanical impact
no data available

Explosion data - sensitivity to static discharge
no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Specific engineering controls
Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid
Colour	no data available

Safety data

pH	no data available
Melting/freezing point	no data available
Boiling point	no data available
Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
Dermal LD50
no data available

Other information on acute toxicity

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

Possible human carcinogen

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Aflatoxin M1)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Ingestion	May be fatal if swallowed.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 3462 Class: 6.1 Packing group: I
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Aflatoxin M1)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 3462 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXINS, EXTRACTED FROM LIVING SOURCES, SOLID, N.O.S. (Aflatoxin M1)
Marine pollutant: No

IATA
UN-Number: 3462 Class: 6.1 Packing group: I
Proper shipping name: Toxins, extracted from living sources, solid, n.o.s. (Aflatoxin M1)

15. REGULATORY INFORMATION

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
Aflatoxin M1	6795-23-9

WHMIS Classification

D1A	Very Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by ingestion Highly toxic by skin absorption Highly toxic by inhalation

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Material Safety Data Sheet

Version 3.0
Revision Date 10/27/2009
Print Date 07/12/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Aflatoxin B_1 solution

Product Number : 44647-U
Brand : Supelco

Company : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA
Telephone : +19058299500
Fax : +19058299292
Emergency Phone # : 800-424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS-No.	EC-No.	Index-No.	Concentration
Methanol			
67-56-1	200-659-6	603-001-00-X	>= 99 - <= 100 %
Aflatoxin B1			
1162-65-8	214-603-3	-	<= 0.001 %

3. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Eyes, Kidney, Liver, Heart, Central nervous system

WHMIS Classification

B2 Flammable liquid
D1A
D1B
D2B

Flammable liquid
Highly toxic by inhalation
Toxic by ingestion
Toxic by skin absorption
Moderate skin irritant
Moderate eye irritant

HMIS Classification

Health hazard: 3
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

Potential Health Effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Skin	Toxic if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Toxic if swallowed.

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Flammable properties

Flash point	10 °C (50 °F) - closed cup
Ignition temperature	no data available

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Methanol	67-56-1	TWA	200 ppm	2006-11-29	Canada. British Columbia OEL
Remarks	Contributes significantly to the overall exposure by the skin route.				
		STEL	250 ppm	2006-11-29	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.				
		TWAEV	200 ppm 260 mg/m3	2005-12-17	Canada. Ontario OELs
	Skin				
		STEV	250 ppm 325 mg/m3	2005-12-17	Canada. Ontario OELs
	Skin				
		TWA	200 ppm 262 mg/m3	2004-04-30	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin				
		STEL	250 ppm 328 mg/m3	2004-04-30	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin				
		TWAEV	200 ppm 262 mg/m3	2006-12-29	Canada. Quebec OELs
	Skin (percutaneous)				
		STEV	250 ppm 328 mg/m3	2006-12-29	Canada. Quebec OELs
	Skin (percutaneous)				
		TWA	200 ppm 262 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)

	Substance may be readily absorbed through intact skin				
		STEL	250 ppm 328 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin				

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid

Safety data

pH	no data available
Melting point	-98 °C (-144 °F)
Boiling point	65 °C (149 °F) at 1,013 hPa (760 mmHg)
Flash point	10 °C (50 °F) - closed cup
Ignition temperature	no data available
Lower explosion limit	6 %(V)
Upper explosion limit	36.5 %(V)
Vapour pressure	129 hPa (97 mmHg) at 25 °C (77 °F)
Density	0.790 g/cm3
Water solubility	no data available
Evaporation rate	5.9

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Acids, Oxidizing agents, Alkali metals, Acid chlorides, Acid anhydrides, Reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Hazardous reactions
Vapours may form explosive mixture with air.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

no data available

Irritation and corrosion

no data available

Sensitisation

no data available

Chronic exposure

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Signs and Symptoms of Exposure

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation	Toxic if inhaled. Causes respiratory tract irritation.
Skin	Toxic if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Toxic if swallowed.
Target Organs	Eyes, Kidney, Liver, Heart, Central nervous system,

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

no data available

Ecotoxicity effects

no data available

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol, solution
Reportable Quantity (RQ): 5000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHANOL, SOLUTION
Marine pollutant: No

IATA
UN-Number: 1230 Class: 3 (6.1) Packing group: II
Proper shipping name: Methanol, solution

15. REGULATORY INFORMATION

DSL Status
This product contains the following components that are not on the Canadian DSL nor NDSL lists.

	CAS-No.
Aflatoxin B1	1162-65-8

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1A		Highly toxic by inhalation
D1B		Toxic by ingestion
D2B		Toxic by skin absorption
		Moderate skin irritant
		Moderate eye irritant

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Aflatoxin B1
Proposed Use Dose:	1000 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	9000 µg

Calculation:

9000 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 450000

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 45000

Comments/Recommendations:

OK

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Aflatoxin M1
Proposed Use Dose:	1000 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	300 µg

Calculation:

300 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 15000

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 1500

Comments/Recommendations:

OK

Western

TOXIN USE RISK ASSESSMENT

Name of Toxin:	Ochratoxin A
Proposed Use Dose:	1000 µg
Proposed Storage Dose:	1000 µg
LD_{50} (species):	20000 µg

Calculation:

20000 µg/kg x 50 kg/person

Dose per person based on LD_{50} in µg = 1000000

LD_{50} per person with safety factor of 10 based on LD_{50} in µg = 100000

Comments/Recommendations:

OK